



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/821,582	04/09/2004	Gary Charles Berkowitz		1899
37243	7590	07/25/2007		
GARY C. BERKOWITZ 7778 S. POPLAR WAY CENTENNIAL, CO 80112			EXAMINER FERRIS III, FRED O	
			ART UNIT 2128	PAPER NUMBER
			MAIL DATE 07/25/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/821,582	Applicant(s) BERKOWITZ ET AL.	
	Examiner Anshul Mangal	Art Unit 2128	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04/09/2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 4/09/04 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

The claims in the present application were thoroughly considered and reviewed. However, they are rejected under 35 USC § 101, 35 USC § 112, 35 USC § 102(b) and 35 USC § 103. Claims 1-3 are rejected under 35 USC § 101 and 35 USC § 112. Additionally, Claims 1-2 are rejected under 35 USC § 102(b) and Claim 3 is rejected under 35 USC § 103.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

1. ***Claims 1-3 are rejected under 35 U.S.C. 101 because the claimed invention is drawn to non-statutory subject matter.***
2. ***Regarding claim 1: The Examiner submits that the claim as written, are merely drawn to nonstatutory descriptive material since the claimed "reconfigurable virtual machine" appears to be an apparatus claim that consists only of software program elements (i.e. program per se). Further, the specification does not appear to set forth that claimed "reconfigurable virtual machine" consists of anything other than simply software elements. Furthermore, while the "reconfigurable virtual machine" operates on an underlying physical hardware processor, it is not clear that the hardware processor is part of the virtual supercomputer apparatus. Dependent claims inherit the deficiency of the claims from which they depend.***

Art Unit: 2128

MPEP 2106 recites the following supporting rational for this reasoning:

"Descriptive material can be characterized as either "functional descriptive material" or "nonfunctional descriptive material." In this context, "functional descriptive material" consists of data structures and computer programs which impart functionality when **employed as a computer component**. (The definition of "data structure" is "a physical or logical relationship among data elements, designed to support specific data manipulation functions." The New IEEE Standard Dictionary of Electrical and Electronics Terms 308 (5th ed. 1993).) "Nonfunctional descriptive material" includes but is not limited to music, literary works and a compilation or mere arrangement of data. **Both types of "descriptive material" are nonstatutory when claimed as descriptive material per se.** Warmerdam, 33 F.3d at 1360, 31 USPQ2d at 1759. When functional descriptive material is **recorded on some computer-readable medium** it becomes structurally and **functionally interrelated to the medium** and will be **statutory in most cases** since use of technology permits the function of the descriptive material to be realized."

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. *Claims 1-3 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Specifically, independent claim 1 recite the limitations "reconfigurable virtual machine, having its own instruction set" that are not sufficiently disclosed in the specification such that a skilled artisan could make and/or use the claimed invention. The specification appears to be silent on specifically how a virtual machine is reconfigurable, how it has its own instruction set, and specifically what the instructions are. Dependent claims inherit the deficiency of the claims from which they depend.*

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. *Regarding independent claim 1 and dependent claim 3(e), the phrase "such as" renders the claim indefinite because it is unclear whether the limitations following the phrase are part of the claimed invention. See MPEP § 2173.05(d). Therefore, the limitations have not been treated on the merits.*
5. *Regarding dependent claim 2, the claim is indefinite because it is unclear whether claim 2 is a system or apparatus claim based on the wording of the preamble.*
6. *Regarding dependent claim 3, the claim is indefinite because it is unclear whether claim 3 is a method, procedure, apparatus, or system claim based on the wording of the preamble. Furthermore, claim 3 is objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim can only depend on independent claims. Claim 3 depends on claim 1 which is an independent claim and claim 2 which is a dependent claim. See MPEP § 608.01(n). Accordingly, the claim 3 not been further treated on the merits.*

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. *Claims 1 is rejected under 35 USC § 102(b) as anticipated by the U.S. Patent No. 5,101,346 granted to Ohtsuki et al.*

Ohtsuki anticipates the limitations of the instant invention as presently claimed as follows:

Per claim 1: A virtual supercomputer apparatus, comprising: a reconfigurable virtual machine (processor) (column 6 line 57), having its own instruction set (column 3 line 18; instruction processors are functionally equivalent to having an instruction set), and operating on an underlying physical hardware processor (column 3 line 10); or a local or distributed network of such virtual machines (column 3 line 7; Fig. 1 and Fig. 2); where the virtual machine architecture is designed to handle the class of problems having a solution describable in terms of nodes, where a node comprises an index word and a data word, and where each node represents one or more data structures such as (column 8 line 5): numeric tags, character tags, boolean flags, numeric values, character values, objects IDs, database-record IDs, simple arrays, variable-density multidimensional arrays, symbolic functions, mathematical functions, connection pointers to other nodes, function pointers, lookup-table list pointers, linked-lists, or even pointers to other solution spaces or data representations; and where nodes are interconnected in any topology (see Fig. 1, 2, and 4), such as: independent point-clouds, ordered sets of points, acyclic graphs, cyclic graphs, balanced trees, recombining graphs, meshes, lattices, and various hybrids or combinations of such representations; and where a virtual machine includes virtual hardware units to: configure nodes and virtual processor architecture (column 1 line 14), including register

structures, node data structures, arithmetic modes, and memory schemes; and units to create (that is, instantiate) nodes, compute results for (that is, populate) nodes, move among (that is, navigate) nodes, and alter (that is, evolve) nodes and their interconnections; and a unit to provide highly-optimized function evaluation and fixed-point integer arithmetic, with application-selectable precision; and a unit to manage the distribution of data and processes to networked machines.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. *Claim 2 is rejected under 35 USC 103(a) as being unpatentable over U.S.*

Patent No. 6,269,391 to Gillespie as applied in view of U.S. Patent No. 5,101,346 granted to Ohtsuki et al.

As noted above, Ohtsuki renders obvious the limitations of claim 1. However, it does not teach claim 2. But, analogous art Gillespie does render obvious the limitations of claim 2 as follows:

Per claim 2: A virtual supercomputing system, comprising: the virtual machine of claim 1, and a multi-tasking operating system for the virtual machine (column 1 line 57; multi-process operation system is functionally equivalent to multi-tasking operating system), that creates a new virtual CPU for each task thread (column 4 line 55), and

contains: software engines for configuring, instantiating, populating, navigating, and modifying (evolving) nodes; autonomous daemons for background processing of nodes; and a toolbox containing frequently-used engine programs; and allows for multiprocessing via multiple virtual machines implemented on a network of underlying hardware processors, in a local or distributed cluster; an assembler for translating operating-system calls into virtual machine operation codes; and platform drivers for implementing virtual-machine operations on the underlying physical platform processor, via a platform assembler for translating virtual machine operations into instruction-codes for platform operations. (assembler translating virtual machine code to operating system code, assembler translation operating system code to virtual machine code, and virtual machine platform drivers are inherent in the art).

An obvious motivation exists since this area of technology is highly competitive with many virtual supercomputing systems available in the market place and large amounts of money being spent in product development and improvement. Accordingly, a skilled artisan would have made an effort to become aware of what capabilities had already been developed in the market place and, hence, would have been motivated to modify the teachings of Ohtsuki with the teachings of Gillespie.

Conclusion

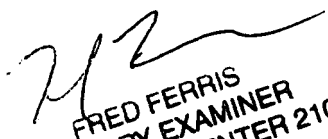
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anshul Mangal whose telephone number is 571-272-6022. The examiner can normally be reached on 8:30-5:00 M-F.

Art Unit: 2128

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kamini Shah can be reached on 571-272-2279. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Anshul Mangal, Primary Examiner
Simulation and Emulation, Art Unit 2128
U.S. Patent and Trademark Office
Randolph Building, Room 5D19
401 Dulany Street
Alexandria, VA 22313
Phone: (571-272-6022)
Anshul.Mangal@uspto.gov
July 13, 2007


FRED FERRIS
PRIMARY EXAMINER
TECHNOLOGY CENTER 2100